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ABSTRACT

The general emphasis of Project LONGSTEP was on the identification of changes in student achievement that occur as a result of exposure to intensive educational innovation. This booklet provides a brief overview of the project. A total of five project reports plus two separate appendices of supporting data were produced by Project LONGSTEP. This summarizes very briefly these five reports. "Data Collection Instruments and Guidelines" developed for Project LONGSTEP referenced in Vol. I, Chapter II, Section C, will be accessioned TM 005 987 in RIEMAY77. (RC)

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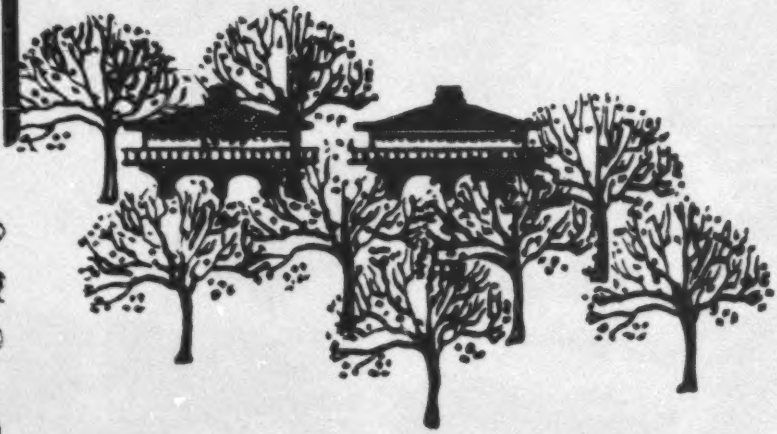

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EXPLORING THE IMPACT OF EDUCATIONAL INNOVATION:

OVERVIEW OF PROJECT LONGSTEP

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INTRODUCTION

Background and Objectives

The Need. Educators and noneducators alike have shown a growing awareness of the lack of--and need for--evidence as to whether or not innovative educational practices are indeed better than the more traditional approaches.

In response to this need, the U.S. Office of Education in 1969 awarded a contract to the American Institutes for Research to develop a design for a study of the effectiveness of highly intensive, innovative educational practices on students in grades 1 through 12. The general emphasis of the resulting Project LONGSTEP (the Longitudinal Study of Educational Practices) was on the identification of changes in student achievement that occur as a result of intensive educational innovation, "intensive innovation" meaning the implementation of a new program encompassing a significant proportion of students, entailing a major alteration of school procedures, and involving a high investment of resources.

Objectives. Specific objectives were to design a system to study the characteristics underlying innovative educational approaches; to establish a large-scale data base of program characteristics and student outcomes for a select sample of educational programs involving intensive and highly innovative education practices; to determine longitudinally the impact of such innovation upon student performance and attitudes; and to attempt to identify the dimensions of the components that exhibited the greatest impact on student outcomes.

Methods and Techniques

Data Collection. The data collection instruments used in this study provided information on student performance in reading, language, and arithmetic on standardized achievement tests;

student characteristics; educational practices; and teacher characteristics. Student cognitive achievement was measured by either of two commercially developed instruments. Student and teacher background characteristics and attitudes were assessed by questionnaires developed specifically for Project LONGSTEP.

The Educational Experience Analysis Guide was developed so that complex educational experiences could be described and quantified with respect to specific observable characteristics rather than on the basis of variously and ambiguously defined local labels. This Guide was used to document the basic educational attributes of school programs and to locate the educational experiences of participating students on a continuum ranging from traditional to innovative. Information on educational experiences was gathered from interviews with principals and teachers, from classroom observations, and from existing school documentation. This methodology led to the identification of more than 200 different kinds of educational experience groups.

A classroom observation instrument documented characteristics such as physical environment, study arrangements, access to resources, and use of materials.

Data Source

Programs. Schools located in 13 school districts in California, Florida, Kentucky, Minnesota, Pennsylvania, Texas, Utah, Washington, and Wisconsin were selected and became participants during the entire three-year (1970-71, 1971-72, and 1972-73) implementation phase. Some 30,000 students, 80 schools, and 1,500 teachers were involved in the project during these school years.

Innovations. Educational innovations included team teaching, multimedia emphasis, unique school

design, use of paraprofessionals, variations in scheduling, and teacher-developed materials as well as independent study, student selection of materials, and a number of other practices typically associated with individualized instruction.

Communities. The communities served by the school districts ranged from 2,500 to over 600,000 in population and varied from rural to urban-metropolitan in setting with a notable diversity in socioeconomic level. The reported instructional cost per pupil in the participating school districts varied from a low of $540 to a high of $1,050. The percentage of minority group students ranged from less than 1 percent to over 30 percent.

PROJECT REPORTS*

A total of five project reports plus two separately bound appendices of supporting data were produced by Project LONGSTEP. The purpose of this overview is to summarize very briefly these five reports.

Volume I: Impact of Educational Innovation on Student Performance: Project Methods and Findings for Three Cohorts - Gary J. Coles, Albert B. Chalupsky, Bruce E. Everett, Marion F. Shaycoft, Barbara J. Rodabaugh, Malcolm N. Danoff (April 1976)

This report focuses on three groups of students: those who started out as first-graders in 1970-71, those who started out as fourth-graders in 1970-71, and those who started out as sixth-graders in 1970-71. Its primary purpose was to analyze overall differences in achievement growth among educational approaches; an educational growth model in which achievement was related to innovative emphasis, number of minutes of instruction per day, pretest, socioeconomic status, and teaching qualifications; a posttest achievement score statistically adjusted for pretest and

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A limited supply of project reports is currently available and eventually all reports will be available through the Educational Resources Information Center (ERIC). In addition, a set of generalized data files was developed and submitted to USOE for possible use by other investigators. For information on the availability of reports and the data files, contact Dr. George W. Mayeske, Office of Planning, Budgeting, and Evaluation, USOE, 400 Maryland Avenue, Washington, D.C. 20202.

socioeconomic differences; groups of students with similar educational experiences who, on the average, performed either much better or much worse than was expected from their pretest and socioeconomic status; and students who demonstrated particularly large achievement gains during two consecutive school years.

The major conclusions of this report were as follows:

- No evidence could be found that either of the major treatment variables--Level of Innovation or Degree of Individualization--was substantially and positively related to posttest performance. Further, preliminary analyses showed that, on the average, these findings applied equally well to students at different socioeconomic or pretest levels. The expectation that substantial yearly gains in student achievement would occur for a sample of intensive, innovative educational programs was not supported by these findings.

- Even though overall project findings showed that dramatic school effects were not associated with intensity of educational innovation, different educational approaches did produce meaningful and important differences in achievement, especially in the early elementary grades. Unquestionably large gains in reading, language, and arithmetic skills, over and above those expected on the basis of pretest and socioeconomic status, were found to occur in some of the participating schools.

A separately bound executive summary and a volume of appendices accompany the basic volume.

Volume I Supplement: Impact of Educational Innovation on Student Performance: Overall Findings for Reading and Arithmetic - Gary J. Coles, Albert B. Chalupsky (September 1976)

The purpose of the analyses conducted for this supplement to Volume I of the Project LONGSTEP final report was (a) to ascertain if the trends observed and discussed in Volume I with respect to students in grades 1, 4, and 6 during the 1970-71 school year were representative of the trends shown by all analysis samples and (b) to compare results and determine if other meaningful trends across cohorts were present. The overall findings reported here have shown the following:

- The mean reading and arichmetic posttest scores for Project LONGSTEP's sample of fairly innovative schools were not conspicuously farther from national norms than their average pretest scores were from their norms.
- Variations among analysis samples with respect to average reading and arithmetic achievement gains did not tend to be associated in any highly consistent manner with concomitant differences in the mean Level of Innovation, Number of Minutes per Day, and Teaching Qualifications of the samples.
- Variation in Level of Innovation was not consistently or positively related to reading achievement within analysis samples.
- Variation in Level of Innovation appeared to be negatively associated with arithmetic achievement.
- Variation in Teaching Qualifications was not highly or consistently related to reading achievement but was positively associated with small gains in arithmetic achievement.

In summary, the primary research hypothesis, that substantial gains in achievement test performance are positively associated with innovative emphasis, has not been supported in any general way by the analysis of Project LONGSTEP's data. These results, based on a global analysis of trends, across reading and arithmetic analysis samples and grades, tend to confirm the findings reported in Volume I for students in grades 1, 4, and 6.

A separately bound volume of supporting appendices to Volume I Supplement is being deposited in the Educational Resources Information Center (ERIC).

Volume II: Innovative School Environments and Student Outcomes - Gary J. Coles, Albert B. Chalupsky (September 1976)

The specific purpose of this volume was to explore the possibility that growth in student achievement test performance and positive changes in school-related attitudes were highly associated with school environments in which there was, on the average, a great deal of emphasis on innovation. Both student outcome scores and treatment data in language arts, mathematics, social studies, and science were aggregated to the school level so that the more general question of the relation between school environments and outcomes could be explored.

The findings of this study suggest that

- Important differences among schools with repect to the achievement test performance and attitudes of their students existed in a number of LONGSTEP samples analyzed.
- Greater average growth in achievement test performance and positive changes in attitude were not associated with school-level emphasis on innovation and individualization.
- Measures of growth in achievement were typically not related to our quantity of schooling indices. There was, however, a tendency for these indices to be positively related to student attitudes toward schooling.
- In general, changes in average student attitudes toward school were not significantly related to average growth in achievement. However, the majority of correlations were positive.

In respect to our primary hypothesis, the results of this study indicate that innovative school environments did not demonstrate a substantially positive impact on either achievement

or student attitudes. These findings essentially support the student-level findings reported in Volume I and the Volume I Supplement. The pattern of results leads us to conclude that important differences among schools in the LONGSTEP sample did occur but that such differences were not highly associated with innovative school environments.

Volume II Appendix Report: A Preliminary Study of the Relevance of a Standardized Test for Measuring Achievement Gains in Innovative Arithmetic Programs - Bruce E. Everett (September 1976)

During the course of Project LONGSTEP, questions were raised concerning (a) the relevance of the standardized achievement test utilized in the project to the stated objectives of the educational treatments included in the participating educational programs and (b) the extent to which the findings discussed in Volume I may have been influenced by the particular instrument chosen to measure cognitive achievement. To provide at least partial answers to these questions, a study of the arithmetic items contained in the test and their relevance to the educational objectives of the arithmetic treatments encompassed by Project LONGSTEP was conducted.

Specifically, two research questions were addressed:

- Were the particular skills necessary to answer correctly the arithmetic items on the Comprehensive Tests of Basic Skills (CTBS) actually incorporated into the curriculum objectives of arithmetic treatments?
- To the extent that arithmetic treatments differed from one another in the relevance of the CTBS test items to their curriculum objectives, what effect did this difference have on test performance?

With respect to our first research question, whether or not the arithmetic skills tapped by the CTBS were actually incorporated into curriculum objectives of arithmetic treatments, the answer is clearly "Yes" for the third- and sixth-grade samples selected from Project LONGSTEP. The CTBS, Forms Q and R, does appear to be a valid measure of the degree to which student performance in arithmetic matches the arithmetic objectives of

these particular treatments. Although we do not know how widely these treatments differ among themselves in terms of objectives that do not appear on the CTBS, there are very few grade level arithmetic skills which are not present in some way on the CTBS. What disagreement there is about the relevance of CTBS items among the teachers polled is largely confined to the more complex, difficult objectives, and these objectives are tapped by a much smaller number of items than are those relating to basic arithmetic skills.

In response to the second research question, to what extent variations in the relevance of the CTBS to curriculum objectives affect test performance, the fact that there is so little variance among treatments in the relevance of the CTBS probably accounts for the finding that the impact of domain relevance is so slight. Also, the pretest scores for the two samples show themselves to be much more important predictors of posttest performance than does domain relevance. The importance of current exposure to these arithmetic skills thus appears to be largely overshadowed by prior experience with those skills.

Project LONGSTEP Memorandum Report: Parental Educational Expectations and Their Impact on Student Outcomes - *Albert B. Chalupsky, Gary J. Coles (September 1976)*

This report summarizes the results of an exploratory study of the relationship between parents' educational expectations for their children, the children's perceptions of these expectations, and student outcomes. Of particular interest were the congruence between parental expectations and the children's perceptions of these expectations and the impact of this congruence on student achievement and attitudes toward school.

The data for the present study came from an earlier investigation designed to determine the dependability of the Project LONGSTEP questionnaire responses. Students represented a 2% stratified random sample (by grade within each school) of the students participating in Project LONGSTEP during the 1971-72 school year.

The results of the present study suggest that

- Parental expectations (as perceived by the children) concerning how far in school they want their children to go and how good a student they want their children to be were both positively related to children's general attitudes toward school but not related to children's achievement test performance during the subsequent year.
- Parental expectations (as reported by parents) concerning how far in school they want their children to go showed a positive relationship to children's attitudes toward school, regardless of how accurately children perceive these expectations.
- Parental educational expectations concerning how good a student they want their child to be were positively related to children's

attitudes toward school in those cases where parental expectations and children's perceptions were in close agreement. Where there was very low agreement between parental expectations for how good a student they want their children to be and children's perceptions of these expectations, there was a negative relationship between the parents' expectations and their children's school-related attitudes. With moderate agreement between parental expectations and student perceptions, student attitudes toward school were not related to parental expectations.

- Children appear to be more accurate in estimating how far in school their parents want them to go than in estimating how good a student their parents want them to be.
- From a practical standpoint, parents with high expectations concerning how good a student they want their children to be would be well advised to make a special effort to communicate these expectations to their children. From a research standpoint, the degree of congruence between parental expectations and children's perceptions of how good a student their parents want them to be may be a worthwhile variable to consider for future studies of school-related attitudes.